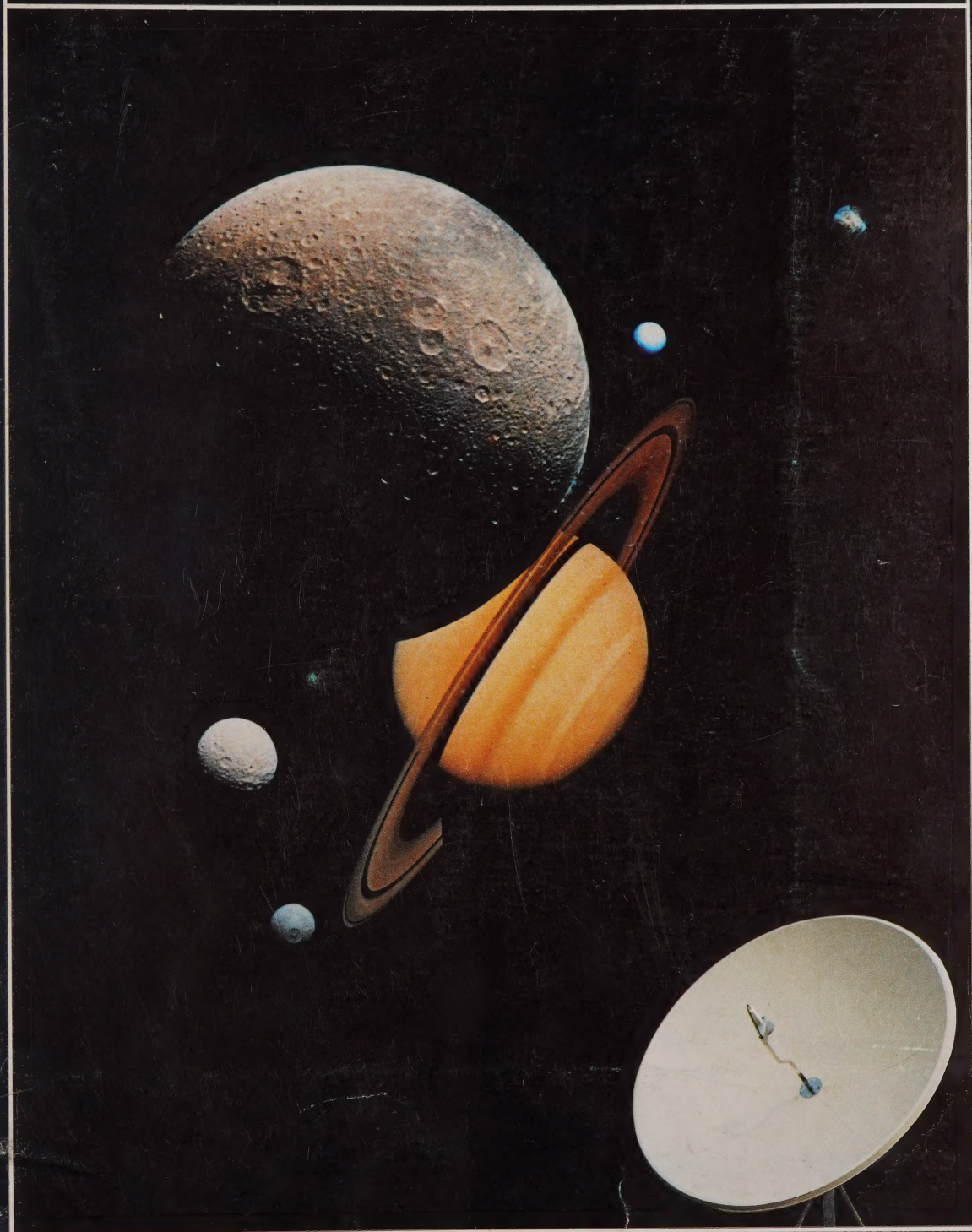
Satellite TV Antenna Systems Ltd



Satellite TV Antenna Systems Ltd

T.ELE V.ISION R.ECEIVE O.NLY
EQUIPMENT MANUFACTURERS & SUPPLIERS

Low cost T.V.R.O. Systems are now a reality . . . . . the SATVRN Systems now available are the product of many years research and development and will provide the user whether commercial or domestic, with professional quality reception and trouble free service.

SATVRN Systems are adaptable to Cable TV operations, private installations, apartments, condominiums, hotels, farms and remote locations, mobile home and caravan sites, office buildings . . . . . even to neighbourhoods and communities on a cooperative basis.

From 23,000 miles out in space come sharp, clear television images, over many channels, into your own home. Transmitted from many countries.

Antenna from 1.8m to 7.5m with associated electronics for use WORLD WIDE for reception of SATELLITE TELEVISION signals in the 4GHz and 11/12GHz Frequency bands.

SATELLITE TV ANTENNA SYSTEMS LTD. 4 Clarence Street, Staines, Middx.
Tel: 0784-61234

Prodelin

A M/A-COM COMPANY

Segmented Fiberglass Earth Station Antennas

DESCRIPTION

3.0M (10 ft.) EARTH STATION ANTENNA

Prodelin's 3.0 meter antennas utilize an eight segment compression molded fiberglass reflector*. A prime focus feed locates the LNA at the focal point of both the plane and dual polarized receive only antennas. A prime focus feed of waveguide design is used for transmit and receive antennas.

A polar (hour angle) type mount is supplied with this antenna. This is a 'true' polar mount and is capable of alignment with any visible satellite in the domestic geostationary orbit.

The parabolic reflector is easily assembled of eight identical self-aligning segments. The segments are made from compression-molded fiberglass (FRP) material providing exceptionally high strength to weight ratio.

*Patent applied for.

SPECIFICATIONS

ELECTRICAL	PLANE POL.	DUAL POL.	Tx/Rx
Catalog Number*	135-750	135-752	155-752
Operating Frequency Range (GHz) Receive Transmit	3.7-4.2 —	3.7-4.2 —	3.7-4.2 5.925-6.425
Feed Type	PRIME FOCUS		
Mid-Band Gain (dB) Receive Transmit	40.1 —	40.1 —	39.5 43.0
VSWR	1.2	1.2	1.25
Feed Port Isolation (dB)	—	30	30
Half-Power Beamwidth (at Mid-Band) Receive Transmit	1.7° —	1.7° —	1.7° 1.15°
First Sidelobe Level (Nom.) Receive Transmit	18 dB —	18 dB —	18 dB 20 dB
Radiation Pattern, Averaged Envelope per FCC 25-209 32-25 log θ 10 dBi	$1° \leq \theta \leq 48°$ $48° \leq \theta \leq 180°$		
Antenna Noise Temperature (°K) (Referenced to OMT Port) Elevation 5° 10° 20° 30° 40°	 44 37 28 24 22	 44 37 28 24 22	 44 37 28 24 22
Feed Flange Receive Transmit	CPR-229G —	CPR-229G —	CPR-229G CPR-137G

*These antennas comply with FCC Rule Para 25-209 and CCIR Recommendation 465 and Report 391-1.

STANDARD FEATURES

- Individual reflector segments are interchangeable and field replaceable.
- Feed can be rotated through 360° of polarization adjustment from the rear of the antenna
- Segmented reflector significantly reduces size of shipping containers. Provides savings on handling and transportation costs.
- Segments have integral indexing tabs for positive self-alignment.
- Textured front surface diffuses sunlight and reduces solar heating at focal point.
- Antenna can be erected by 2 installers—without the use of cranes or special hoisting gear.

ENVIRONMENTAL

Temperature Range Operational	—40°C to + 60°C
Wind Loading @ 0°C (+ 32°F) Operational	96 km/h (60 mi/h) wind gusting to 136 km/h (85 mi/h)
Survival	200 km/h (125 mi/h) with no ice; 140 km/h (87 mi/h) with 51 mm (2") radial ice

Meets or exceeds MIL-STD-810B

Atmospheric Conditions: Impervious to salt, pollutants, and corrosive contaminants as encountered in coastal and industrial areas

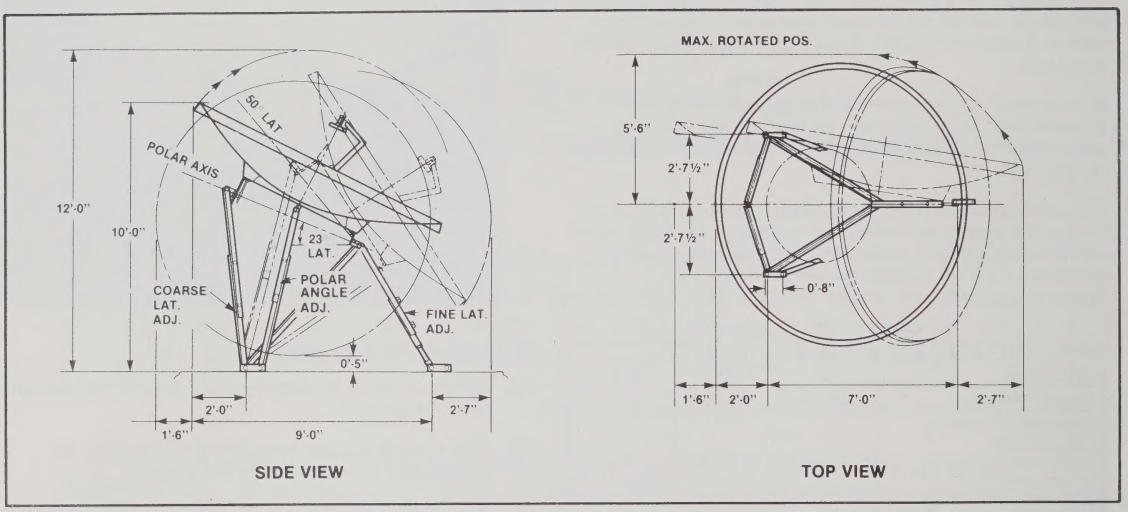
MECHANICAL

Mount Configuration — Polar (Hour/Angle) Aligns to any satellite within the visible geostationary orbit serving the continental U.S.

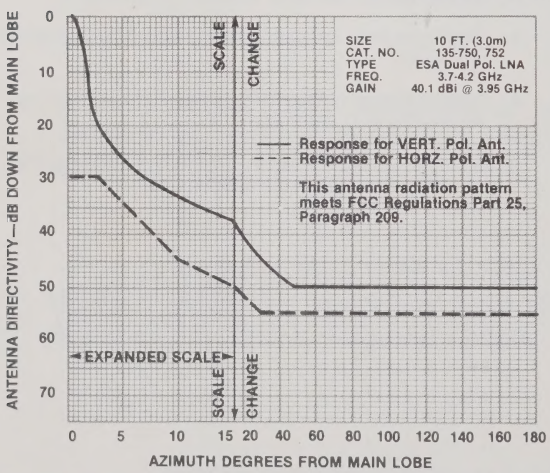
Reflector — 8 segment fiberglass (FRP), 3.0M (10 ft.) diameter

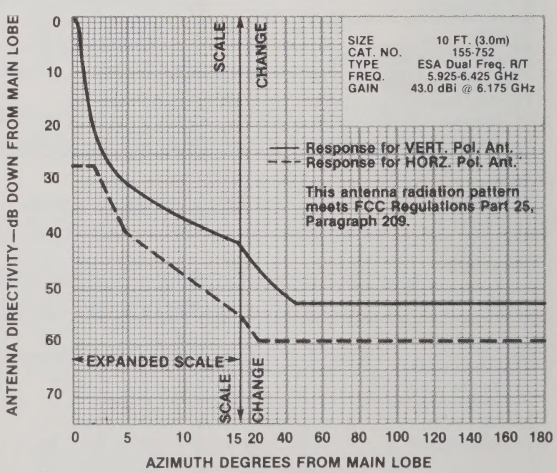
Shipping Dimensions

	Cu. Ft.	Lbs.
Reflector	72	450
Back-up structure	2	115
Polar Mount	3.5	285
Feed	9.0	42
Complete Antenna	86.5	892



RADIATION PATTERNS





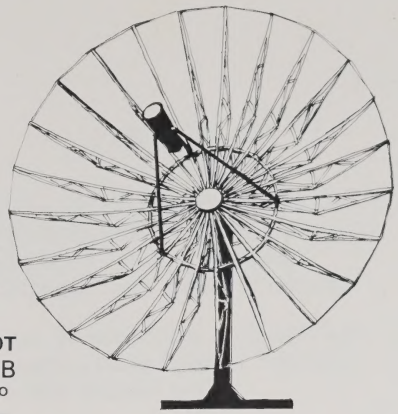
FOUNDATION DETAIL

The foundation for this mount is typically three (3) piers of reinforced concrete. Pier dimensions are 2 ft. dia. x 5 ft. deep. Total concrete required is approximately 1.8 cubic yards. Foundation requirements are subject to soil bearing capacity.

R1501 ESA

SATVRN

5.0m – 6.0m and 7.5m ANTENNA



OPERATING FREQUENCY 3.7 - 4.2 GHz

Electrical

	20 FOOT	16 FOOT
• Antenna Gain	46.5 dB	44.5 dB
• Beam Width at Midband	0.8°	0.86°
• F/D Ratio	.375	.375

- First Sidelobe Exceeds FCC 32 Minus 25 Log Theta Intelsat Curve
- Operational in all climatic conditions.

Mechanical

BASE

1) Fabricated structural steel, designed for 125 MPH winds normal to dish.
2) Elevation adjustments for exact latitude, coarse and fine
3) Azimuth correction adjustment built-in for low rise satellites.
4) Motor driven polar tracking system for individual satellite location, manual standard, automatic optional.
5) Total weight of base - approximately 650 lbs. for 20′ and 16′ .
6) Requires a 4′ x 4′ x 6″ deep concrete base.

DISH

1) Aluminium flattened expanded metal shaped to exact Parabolic contours, computer designed for .375 F/D Ratio.
2) Aluminium prefabricated trussed ribs for shape rigidity at design wind loads.
3) Complete preassembly of parts using modular subassemblies.
4) Ease of assembly due to light weight of dishes, approximately 600 lbs. for 20 foot dish, 200 lbs. for 16 foot dish.
5) Aluminium structural LNA mount, adjustable for focus and alignment.
6) Micro-grid surface produces a median wind load factor of 50% less than standard solid dishes.

Step Tracking Facility also available for 6.0m and 7.5m antenna

SATVRN 4 GHz RECEIVING EQUIPMENT

Specifications:

Frequency Range	3.65 to 4.20 GHz.
Antenna Feed System	Based on Standard Chapparal Scalar Horn. To suit f/D ration .33 to .45, remote polarisation control, RH or LH circular, or linear.
LNA/LNC noise temperature	Standard 120°K (for 1.8 - 3-metre system).
	Optional 100°K (for 3m - 6m systems)
	High performance 70°K for Intelsat TV reception with 6 - 7.5 metre antenna.
Video format	PAL/SECAM/NTSC, 525/625 lines, full or half transponder.
Energy dispersal cancellation	40 dB, standard or wide-band (for Soviet system).
Audio demodulator	Switchable or tunable subcarrier. Pilot tone expander (for Soviet TV) and tunable independent carrier demodulation (for African and Middle Eastern transmissions) available.

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LULY PORTABLE ANTENNA

The LULY 8′ Parabolic Umbrella Antenna is a recent development in the field of Satellite TV reception. With its accurate silver plated mesh fabric reflector and Newtonian Feed it makes practical the immediate reception of Satellite Television signals. The unit is fully portable, light weight and can be erected in a matter of minutes.

It is of special use as a Field Test Antenna and Demonstration unit as it will pack readily into an estate car or small van and can be used to bring Satellite Television into a home or office as an immediate sales or Antenna site location aid.

(See illustration on back cover of folder.)

SATVRN G.R.P. EARTH STATION ANTENNAS

Description

1.8m (6') Earth Station Antenna. Prime Focus Feed

Detailed specifications for larger sizes available on request

This antenna designed for use at 11 or 12 GHz is suitable for Commercial or domestic reception. It is supplied with an AZ/EL mounting and is easily erected and installed on a simple foundation in a very short time.

Specification

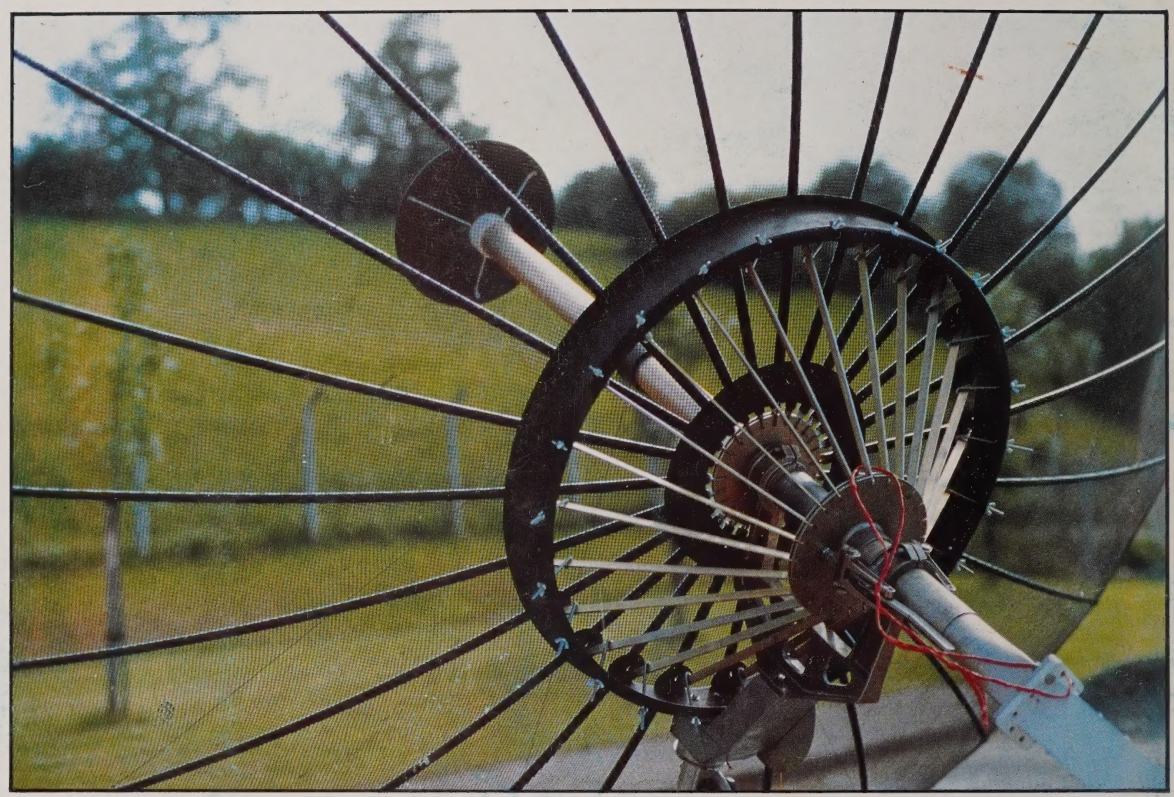
Frequency Band (GHz)	10.95-11.70 or 11.70-12.50
Gain at Frequency (dBi ± 0.2dB)	45 at 12 GHz
Noise Temp. (K) (at 30° Elevation)	≤ 30
VSWR	1.3
HP B/W° E Plane	1.0

Mount Adjustment

Elevation Coarse	0° to 80°
Fine	+ / − 10°
Azimuth Coarse	0° to 360°
Fine	+ / − 5°
Shipping Dimensions	Wt. 160 Lbs Approx. 50 Cu. ft.

SATVRN 11 GHz RECEIVING EQUIPMENT

Input Frequency Range	11.45 - 11.70 GHz (other frequencies available)
Noise Figure	3.8 dB typical
Waveguide input port	WR75
Frequency Stability	± 500 kHz, (−40°C - +50°C)
Interconnection	Single 75 ohm cable between head unit and indoor tuner/demodulator unit, loss 10 dB max.
Video output	1V p-p nominal into 75 ohms, BNC
Video de-emphasis	To CCIR Rec. 405 (625 lines)
Audio subcarrier demodulator	Switchable 5.5 - 6.5 MHz (other frequencies available)
Audio output	+8 dBm nominal into 600 ohms (5-pin DIN)
Audio de-emphasis	50 microseconds
Modulated RF output	Internal VHF or UHF modulator available
Power consumption	16W AC 220V 50/60 Hz (Head unit powered by 12V DC from indoor tuner/demodulator unit, via signal cable)



8′ Portable Field Test Antenna